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tivators of the different districts should assemble, should be to give common facilities, and to enrich themselves and each other by the exchange of their separate commodities.

The publication of Dr Bigelow's book will contribute to the diffusion of a better taste, by making known the essential principles of the arts, and thus preparing for the circulation of larger and more particular treatises. It will do it no less by laying before the young inquirers something like a map of the various regions of pleasant knowledge, at a time when the affections are unoccupied, and

‘The world is all before them where to choose.’

ART. V. Report of the Secretary of the Navy to the President of the United States, December 1, 1829.

WE know of no work of art, no production of human genius and human power, that in any manner rivals, or may even be named in comparison with, the sailing ship. Nor can we, in all the various modes of existence resulting from modern civilization, find any social position so strange, so unnatural, and yet so full of interest, as that which is offered by a ship of war. How singular the sensations of him who gazes for the first time upon this artificial wonder ! His awe at the immense proportions of the huge machine mingle with astonishment at the celerity with which it traverses the water by the aid of its wide-spread and snowy wings,—at the ready obedience with which, at the will of a pigmy, like himself, it changes its course, advances towards the wind, retreats before it, or, entering the port, suddenly becomes still and stationary as the surrounding hills, while the clouds of canvass, which, an instant before, whitened the heavens, disappear, as if by magic, from his view. As he approaches, the awe excited by its growing size and formidable defences, keeps pace with the pleasure which he feels in finding these qualities blended with so much of symmetry and beauty. The smooth side broken only at regular intervals by the protruding cannon, the graceful curves of bow and stern, and the nice proportions of the tapering spars, as they rise in exact and Corinthian harmony, each sustained by its system of stays and rigging, in turn attract and gratify his eye.

And when at length he stands upon the deck, perplexed and amazed at the strange sights and sounds that surround him, his ears pierced by the shrill whistle of the boatswains, or grated by their rough bellow, rising above the din of the multitude, in voices which he can scarce recognise for those of his fellow men ; when suddenly he beholds this scene of more than Babel confusion pass at the command of an individual, first into a death-like silence, and then into a movement as concerted as of a single body yielding to its inward will ; and finally turns to survey and scrutinize the various arrangements for the comfortable accommodation of so many inhabitants, for destruction, and for defence,—no spectacle can have equal power to overwhelm him with wonder and admiration.

There is, indeed, much that is curious in a man-of-war. Each ship offers in itself a perfect community, self-existent and self-dependent ; entirely unlike anything to be met with on shore. In fact, the land does not more differ from the water, than life ashore does from life afloat. One of the very first things which strike landmen when they enter a man-of-war, is the entire restraint, nay, absolute surrender of volition in all except one of those embarked ; the stern superiority of him who orders, and the mechanical and unqualified submission of those who obey. A ship, indeed, with its captain, officers, and seamen, forms no imperfect miniature of a monarchy, with its king, nobles, and third estate. If there be any difference, it is that the gradations are more decided, the despotism more complete. This state of things results less from the subordination necessary and common to all military establishments, than from the peculiar difficulties and dangers attending naval life, which do not allow each man to remain, even in immaterial things, master of his actions, but, inasmuch as the fate of all depends upon the conduct of each, requires a harmony of action only to be obtained by the most complete subordination to a single will.

These peculiarities render the economy of a man-of-war very interesting to landmen, and the subject, well treated, is susceptible of much attraction. In '*Roderick Random*' we have a good and true description of naval life. The '*Pilot*' and '*Red Rover*' of our countryman give us a more general, and at the same time more graphic picture of sea affairs ; no author has more completely mastered the mysterious sources of interest that hover over the wanderers of the deep. With-

out abandoning the fireside, we are yet led forth in fancy to roam the trackless waste of waters, become participants in the elastic feelings of his heroes, as they dash onward, triumphing over space and the elements. He teaches us to prepare for battle, and nerves our arms to meet and grapple with the foe ; to read the prognostic of the coming storm, to share the mariner's anxiety, to aid him in arresting its fury, and fairly carries us rolling forward, until the head swims and the eye grows dizzy. Nowhere, however, have we seen, in so few words, so spirited and moving a picture of the warrior-ship, as in those noble lines of 'Childe Harold.' They bring all our quarter-deck recollections thronging so palpably around us, that we cannot forego the pleasure of copying them.

'He that has sailed upon the dark blue sea,
Has viewed at times, I ween, a full fair sight ;
When the fresh breeze is fair as breeze may be,
The white sail set, the gallant frigate tight ;
Masts, spires, and strand retiring to the right,
The glorious main expanding o'er the bow,
The convoy spread like wild swans in their flight,
The dullest sailer wearing bravely now,
So gaily curl the waves before each dashing prow.

'And oh, the little warlike world within !
The well-reeved guns, the netted canopy,
The hoarse command, the busy humming din,
Where, at a word, the tops are manned on high ;
Hark to the boatswain's call, the cheering cry !
While through the seaman's hand the tackle glides ;
Or school-boy midshipman, that, standing by,
Strains his shrill pipe as good or ill betides,
And well the docile crew that skilful urchin guides.

'White is the glassy deck, without a stain,
Where on the watch the staid lieutenant walks ;
Look on that part which sacred doth remain
For the lone chieftain, who majestic stalks,
Silent and feared by all—not oft he talks
With aught beneath him, if he would preserve
That strict restraint, which broken, ever balks
Conquest and fame.'

The Report of the Secretary of the Navy we have placed at the head of this article rather as affording us an opportunity to express some of our opinions on the subject, than with a view to criticism or elaborate discussion. We have only to remark in passing, that the Report contains some suggestions which seem to us important, and we are particularly glad to find in it

a renewed recommendation of the establishment of naval schools. But on this topic we shall touch hereafter.*

Without further preliminaries, we shall avail ourselves of the present occasion to institute a brief inquiry into the origin and progressive improvement of navies in general, and into the condition and prospects of our own in particular. And if it be remembered that, independently of the protection of our commerce, a navy is our natural means of defence; that all the nations from which we have anything to fear are separated from us by intervening oceans (we consider the present proximity of British territory as but accidental and temporary), and that they can only reach us by a display of naval power; that, in fact, of the foreign wars we have already waged, a majority have been exclusively of this character; that, whilst this mode of warfare demands infinitely less sacrifice of life and money,

* In reverting to naval concerns, we are forcibly reminded of a work of much merit, which perhaps we ought sooner and in a more formal manner to have introduced to the notice of our readers. We allude to the '*Sketches of Naval Life, in a Series of Letters from on board the Brandywine and Constitution Frigates.*' The title of the book itself promises much entertainment, and the author has well redeemed this promise. Descriptive scenes of a well-ordered ship of war, adorned in the first place by the presence of the most interesting and most enviable individual now living, the warrior, the patriot, the philanthropist, Lafayette—him whose generous sympathies were too expansive for a single hemisphere,—and afterwards relieved by visits to the fairest portions of the old continent, accidentally rendered more deeply interesting by the passing events of a revolution, then fixing the attention of the world, furnish no unworthy or ungrateful theme. Perhaps full justice has not been done to it, for this would be no easy achievement; yet we should neither deal fairly by the author, nor by our own feelings, did we not commend his total freedom from pretension and quackery, and the patriotic and liberal spirit in which his work is written. We would especially bear testimony to the good sense of that part in which he speaks of the improvements necessary to the perfection of our naval system. His concluding letters constitute the most valuable portion of the work, and may be read with equal advantage by naval men and by legislators. The advice to a young midshipman about to enter upon the duties of his profession, is equally creditable to the sound sense and good feelings of its writer; and we think that every young man, thus situated, might derive great advantage from its attentive perusal. Such a one is apt, when commencing his career, and looking with an eager eye to the attainment of honor and excellence, to form vague determinations as to the course of conduct which is to lead him to success. A system of action thus methodized and written down, might tend in no trifling degree to keep alive these generous aspirations.

the force by which it is maintained is without danger to our national liberties; finally, that a navy goes forth to meet the danger at a distance from our shores, leaving the cultivator to reap in peace the fruits of his labor, unalarmed by the turmoil of approaching war, and spared the slaughter and destruction that mark the track of armies;—if we keep in mind these facts, the subject may well command our attention.

Naval war exists in the earliest stages of society; it has its origin in the very passions and constitution of our nature. The savage has scarce learned to venture forth upon the water in the canoe which he has rudely hollowed from a tree of the forest, ere, embarking with his bow and arrow, his hardened war-club, his javelin, or his lance, he transports himself to the spot whither he is attracted by revenge for some real or supposed injury, by avaricious longing for some contemptible booty, the desire of making prisoners, of adding to the number of his wives, of providing victims for the altar of idolatry, or of furnishing a horrible banquet. He succeeds in his enterprise; or, met by a wary adversary, with equal weapons, and with everything to defend, they join battle; instead of trumpets, the wild whoop and war-conchs sound the onset; arrows and javelins are hurled, clubs are brandished; the frail barks of the combatants are overturned beneath them; and with the sea for an arena, and fury to make up for the imperfection of their weapons, they are enabled to strew it with victims. And thus we find the Caribs, not only destructively encountering each other, but disputing the victory with the steel-clad Spaniards, who first intruded upon the scenes of their triumphs; and with no better weapons than bows and arrows, even these wielded by the hand of woman, offering fatal resistance to the ferocity of the civilized.

Not very different from these Carib battles was naval war in the earliest ages reached by history or tradition. The heroes of Homer went forth in slight barks that were stranded and launched at pleasure, and the same individuals rowed and fought alternately. Among them, as among the Caribs, superior strength and valor decided the victory. In process of time, however, naval war began to assume a peculiar system; the ordinary vessels built for commerce were no longer used for warlike purposes, but as transports; and the galley, in whose construction and exercise the Athenians especially excelled, already acted an important part at the battle of Salamis.

In succeeding centuries naval warfare was gradually improved with the general progress of civilization. The Carthaginians, inheriting all the commercial skill of their Phœnician ancestors, were stimulated to new enterprise by their condition as colonists in a novel and growing region. Removed too from the extremity of the Mediterranean to the neighborhood of its mouth, they were no longer willing to remain circumscribed within its narrow limits, but stood boldly out beyond the *Ne Plus Ultra* of less adventurous voyagers, carrying their commercial enterprises to the extremities of Europe and Africa. As in all other countries the development of their military marine kept pace with the commercial one, of which it was the natural and necessary protector; and Carthage, monopolizing the maritime trade of the world, pretended, like her modern representative in pursuits and character, to the exclusive dominion of the common highway. To support these pretensions, a formidable and well-equipped navy was constantly maintained; and we may accordingly look to the most flourishing era of Carthaginian history for the perfection of naval war, as it existed among the ancients.

The galley was the form of vessel used for war. It was long, low, and narrow, having space for the arrangement of many rowers, whilst it offered little resistance in dividing the water. Thus the Carthaginian *triremes* were usually one hundred feet long, by only ten broad, and seven high. The prow either curved gracefully, or was formed into the image of some ferocious beast. It was always sharp, and armed with metal to cleave the side of an adversary, and often had a projecting weapon, like a ploughshare, beneath the surface of the water, to pierce the bottom. On the summit of the prow stood the emblem; on the Athenian galleys it was an owl, on the Phœnician and Carthaginian, a cock. Here also floated the distinguishing pendant. The stern was no less sharp than the bow, curving gracefully upward so as to overhang the poop, and sometimes presented the figure of a shield. Below it stood the *tutela*, representing the deity, patron of the ship, to which prayers and sacrifices were offered, and which was held so sacred, as to afford a sanctuary to those who took refuge there. Nor was exterior ornament neglected in the galley; paint and gilding were profusely used, and gods and animals represented on the outside. The locomotive means of the galley consisted in sails, which, with their masts, were taken down at pleasure;

and in oars, which constituted the main dependence. These were arranged in rows ascending above each other, to the number of three; for though we read of *quinquiremes*, *octoremes*, up even to thirty and forty, this cannot mean distinct banks, but probably divisions; for the length of the oar, increasing for each ascending bank, must have been already unwieldy in the upper row of a *trireme*. The oars ascended diagonally above each other; the bench of one rower furnishing the footstool for the one immediately above and behind him. Each bank of rowers had its distinct name and class; the higher ones received most pay; for in addition to their being stouter men, it was necessary to load the handles of their oars, in order to counterbalance the increased length of the portion without, which the narrowness of the galley did not admit of doing by a corresponding length of *loom*. A large oar from either quarter changed the direction of the galley at the pleasure of the pilot. The officers and men, by whom the vessel was thus propelled and guided, were entirely distinct from those who fought. These were heavy-armed soldiers, trained to sea service, who stood drawn up in battle-array upon the deck which covered the rowers.

In preparing for battle, the galleys were disburthened of all unnecessary articles, the sails and masts were taken down and stowed, and the oars alone used, so as to move, turn, and as-sail, without reference to the prevailing wind. The fleet was then formed into a triangle, pointing towards the enemy, the store-ships forming the base, and the admiral-ship being at the angle in advance. This being done, the chief, entering a boat, passed from galley to galley, encouraging his followers in a set speech. When he had returned to his own, a gilded shield or a blood-red banner was conspicuously displayed as a signal for the onset. As the opposite fleets now approached by the exertions of the rowers, the shrill trumpets animated the soldiers by their blasts, as they passively awaited their moment for exertion, invoking the gods, and singing a pæan to the lord of battles. The admirals being in advance, first came in contact, each endeavoring, by celerity of movement, to break the oars of his adversary, and pierce his side with his beak, so as to sink or overturn him; darts, javelins, and stones were hurled; when nigh enough, the soldiers thrust at and transfixed each other with their spears of twenty cubits, or plied their battering-rams against the sides; huge pieces of iron (called *dolphins*, from

being cast in the form of that fish,) were projected from the top of the mast, so as to pass through the deck and bottom; fire-ships, filled with pitch and brimstone, were sent among the adverse fleet, or pots of combustibles were cast aboard, until at length, ship grappling ship, the soldiers fought foot to foot and hand to hand with sword and buckler. The battle being decided, the victorious fleet returned to port, towing its prizes, and hung round with pieces of the wrecks; the conquerors, crowned with wreaths, entered the port shouting and singing pæans to Apollo. The choice of the spoil was piously set apart as an offering to the gods; wrecks and entire galleys were placed at the porticos of the temples, and, to commemorate the event, the beaks of others were raised upon the tops of columns.

Naval war underwent but slight variation until the Romans, urged by their contest with Carthage for the possession of Sicily, first turned their attention to the creation of a marine. It is a singular instance of national greatness and magnanimity, that, when without a ship, and totally ignorant of maritime affairs, the Romans should have meditated a contention for the dominion of the seas. A Carthaginian galley, opportunely cast upon their shore, furnished them with a model; and, for want of better sailors, a sufficient number were hastily *manufactured*, while the galleys were building, by means of benches placed upon the land, where the rowers were trained to the use of the oar. The galleys being complete, the rowers were embarked and further exercised in port; and then the soldiers were taken on board, and the fleet set sail. And now, to do away with the vast disparity between his own motley crew and a thoroughly practised enemy, the Consul Duillius resorted to an expedient which brought about a partial revolution in naval warfare. He caused a plank bridge to be so suspended from the mast of each galley, that, by loosening a cord, it could be let fall at pleasure on board of an adjoining vessel; where the spikes at the bottom, and grapnels attached to it, held it immovably fixed. This was the origin and character of the *corvus*; the result will show its use. The adverse fleets came in sight off Sicily, and the Carthaginians, flattered by the comparison between their own trim ships and the clumsily built and worse manœuvred galleys of the Romans, were filled with the happiest anticipations. As they drew nigher, the lumbering appendage at the mast, hitherto the object of derision, be-

gan to excite distrust. This grew stronger when they found that, instead of pausing to send off their missiles, the Romans, concealed behind their curtain of hides, urged boldly on until each galley had struck an adversary, when the *corvus* was let fall with terrible force upon the deck, crushing and transfixing those who had gathered to defend the entrance. The two galleys being thus connected as by a bridge, the Romans rushed boldly to the assault, covering their bodies with their shields. The skill of the Carthaginians was completely neutralized, while their previous confidence was exchanged for consternation; the Roman soldiers, on the contrary, fighting as on land, deserved and won the victory.

Little modification took place in this system of naval warfare until the introduction of cannon. The navies of the Eastern empire continued to consist of galleys, now reduced to *dromones*, having two tiers of fifty oars, making in all one hundred, rowed by as many men. Signals had been introduced to convey orders when out of hearing, and the line of battle was changed from a triangle to a crescent, of which the horns pointed rearward. The admirals, remaining in the centre, continued to head the encounter. The weapons, of annoyance were still bows and arrows, engines discharging javelins with terrible force, as well as huge rocks, a single one of which was often fatal to a galley and her crew. But the most destructive machine then used was the iron tube which each galley carried on her bow, and from which the *Greek fire* was projected in a constant stream upon the enemy, kindling a blaze which water made but more furious, and scattering a horrible death, to which the sea offered no alternative.* Though the assault of the beak remained in use, it was more common to grapple at once, so as to escape the terrible range of the fire-tube, and lie broadside to broadside; thus attached, whilst the rowers transfixed each other with lances through their row-locks, the soldiers fought with such desperation, that often none remained to claim the victory.

* The *Greek fire* has been lately rediscovered by our countryman, Mr Brown. He discharges it, like water from an ordinary engine, through a leathern hose terminating in a tube of metal; and from its resinous and adhesive quality, he projects it to a much greater distance. The moment the stream emerges into the open air, it is kindled by a match affixed to the end of the tube, and converted into a liquid fire of a destructive activity, nowise inferior to that described by the ancients.

The revolution in naval war produced by the introduction of cannon, though not immediate, was eventually greater than upon land. They were first used by the Venetians, who mounted them on the deck of their galleys, either pointed over the rail, or through port-holes pierced through the bulwarks. In the *galea*, which was first used at the battle of Lepanto, a row of small cannon was pointed between different divisions of the oars, while the heavier pieces were arranged upon the poop and forecastle. Notwithstanding the efficacy of cannon to destroy such frail fortresses as ships that a single shot might deliver over to the lurking enemy on whose bosom they reposed, yet, perhaps because their adaptation was at first imperfect, we do not find that they immediately became the chief means of annoyance in naval engagements. At Lepanto we see Don Juan and Ali, the rival admirals, after a short cannonade, rushing to the encounter, grappling ship to ship, and fighting with bows and arrows, firelocks, swords, attack-bayonets, pikes, and battle-axes. The Christians prepared for the *melée* by such defensive armor as mail and helmet, and the Turks covered their bodies with huge leathern shields. At length, as the adaptation of cannon to ships of war became more complete, this means of annoyance grew more prominent, and was made the arbiter of almost every battle. Ships of war, too, had increased so greatly in size, that it became dangerous to both parties to come in contact, lest the weight and mass of each, moving independently, should cause an exchange of shocks which might send both to the bottom. Moreover, the fashion of causing ships to *tumble in*, made the distance so great between the upper sides, at the moment when their bodies were in contact below, as greatly to increase the difficulty of boarding. From all these reasons the contact of ships and hand-to-hand fighting, which made the ancient sea-fights so fatal to life, were exchanged for battering at a distance, until one ship should be made leaky and ready to sink, or have her guns dismounted, or else be so crippled in her spars as to remain at the mercy of her antagonist. Thus the destructive efforts of the ancient mode of naval warfare were chiefly directed against the lives of the combatants, whilst in modern times they are chiefly exerted to destroy or disable the ship. Cannon having become the great destructive agent of ships of war, their relative powers were thenceforth determined by the number and calibre of their respective batteries. These de-

pending in turn upon the size and capacity of the ships, led to their progressive enlargement, until we find the sea groaning under the weight of huge wooden masses, carrying their two, three, and even four tiers of cannon. The oar, moved by the muscular energies of man, was of course powerless to propel the vast machine which had thus taken the place of the galley, and it therefore only remained, by the adaptation of sails, to render available the agent furnished by nature, in a restless and ever-moving element.

When two adverse ships meet in modern times, each manœuvres to obtain the weather-gage, if chance should not already have decided it before coming in sight. The advantage in being to windward is manifold ; in the first place, it enables the weaker ship, if not to escape immediately by superior sailing, at least to keep out of action until favored by the intervention of night, or by the many chances of the ocean ; in the second, it enables the stronger ship to direct its course at once upon the weaker, with the best possible chance of capture ; and lastly, in the case of equal ships, the one having the weather-gage goes into action with a decided advantage. The ship to windward can at pleasure bear down to board, or cross the bow or stern of her adversary to rake her decks ; moreover, being careened towards her adversary, she receives her shot far above the ordinary water-line. On the other hand, the leeward ship, presenting her broadside far below the ordinary water-line, should she receive a shot there, the wound would be brought below the surface in the event of the tack being changed, or the ship, by a diminution of wind or of sail, being brought on an even keel ; moreover, the leeward ship is not only incommoded with its own smoke, but with that of its adversary.

Having determined to fight, a very few minutes serve to clear a ship for action. So soon as drum and fife have pealed forth the well-known alarm, all repair to quarters ; the guns are loosed, the magazines opened, the decks wet and sanded, and fire-tubs filled with water ; additional shot and wads are brought from below, the yards hung in chains, and the sheets stoppered, lest they should be shot away ; the pumps are rigged, and shot-plugs and fishes for strengthening wounded spars are made ready ; loaded muskets and pistols, swords, pikes, and tomahawks are placed in readiness to board or repel boarders. All being at their stations, and everything prepared, the ships approach

under easy sail, and the battle begins. Round shot are fired low so as to pierce the hull near the water-line, or at the body of the ship, to disable the guns and kill the men who manœuvre there ; grape and double-headed shot are directed at the gangways and body of the ship to destroy life, and at the spars and rigging to bring them down and cripple the evolutions of an antagonist. Thus the fight continues until one party being ready to sink from shot-holes between wind and water, or being incapable of further resistance from the disabling of guns, or slaughter of crew, and from loss of spars equally incapable of escape, is compelled to yield. Sometimes, indeed, when thus situated, boarding and a sudden effort of desperate valor may retrieve the worst situation, and render the vanquished victorious. But in order to effect this, the party having the worst must be to windward, so as to bear down and grapple. At this critical moment the boarders are called up, by sound of trumpet or the clatter of rattles, and, seizing their weapons, leap upon the deck of the enemy, where, as in storming a fortress, or as in the ancient sea-fights, individual courage and prowess may decide the victory.

In the encounter of fleets, as of single ships, the weather-gage is esteemed an advantage. Drawn up in columns, they engage ship to ship, conquering by superiority of numbers, of evolutions, or of fire. Instead of engaging line to line, sometimes the enemy's array is broken, and his ships cut off and overpowered in sections, while some are too distant to take part in the conflict. It was by this manœuvre, skilfully devised and boldly executed, that Nelson and Collingwood decided the battle of Trafalgar.

Among the naval powers of the present day, Britain claims the preëminence ; a preëminence founded on vast national resources, from which the government supplies itself at the call of vanity or ambition ; and upon an extended commerce, covering every ocean and every sea, and furnishing employment to thousands of hardy seamen, who are forced at pleasure into the public service. The next marine in point of force and numbers is that of France. The great population and resources of that nation, and the extent of coast by which she is nearly surrounded, naturally adapt her to make a brilliant display of naval power. But her mercantile marine, the only true foundation of a military one, has been so crippled and kept under by the superior force and grasping character

of her neighbor, that the large navy which she now possesses rather results from the determination of government to create one, than from the character and immediate interests of the nation. Spain, though even more adapted than Britain, by the happy union of great internal and external resources and means of developement, to excel as a maritime power, and though but half a century since she was second only to the mistress of the seas, may now, thanks to the withering extension of priestcraft and despotism, eating like a cancer at the core of her greatness, be said to possess no marine whatever. Russia, with little commerce, is yet not without a formidable fleet, which, called into existence by the ambition of her emperors, may increase in power and rest on a more natural foundation, should she, while developement is going on within, gain an extent of coast on the Mediterranean, and add the Greek seamen to the number of her subjects. Holland is still prominent among naval powers, excelling as formerly in the number and excellence of her ships, and in the skill, experience, and courage of her seamen. She owes her present comparative insignificance more to the developement of her neighbors than to her own deterioration.

This brief view would have included, a few years since, all the maritime nations of the earth. But in the mean time a nation has sprung up in another hemisphere, destined ere long to become the chief of naval powers; we speak of this western world, and our own happy Union. Already is our commercial marine second only to that of Britain; already do her statesmen calculate the time that must elapse before we can equal her; already do they point to the period when the sceptre of the seas shall depart from the hand that has so long wielded it in the spirit of tyranny and exclusion. It is true that not only Britain, but several minor powers, exceed us in number and force of ships; but as in every nation the commercial marine is the true and only foundation of the military marine, so the extent of the one is the only true measure of the other. The sinews and muscles of naval war are not the less our own that we do not exercise them; when it shall be necessary to strike the blow, their force will assert itself. But it is not enough that the pugilist should have strength of body, nor does it suffice that we possess the elements of naval power. They must be developed, concentrated, organized. Our merchant ships visit every corner of the world where there is

water to float them, and our ships of war must follow to lend them protection, and enable them to pursue their occupations in peace. A dozen ships of the line, displaying the American ensign in the British Channel, would have protected our trade from belligerent spoliation, and saved us from the check which our national progress received, and the heavy debt which we contracted in the late war. We are, however, indebted to that event for calling into existence the navy which we now possess. The few ships which we sent to sea at its commencement accomplished, indeed, more than could have been expected from so inconsiderable a force, and fairly fought their way into the public favor. Their astonishing speed, and the active energy of their commanders, enabled them to harrass the enemy in every sea; and, aided by a discipline never before equalled in any naval service, when they met an enemy of equal, or even slightly superior force, they were able to thunder forth their fire with a precision and rapidity that rendered a naval battle the affair of minutes instead of hours. Since the war, we have added gradually to the number of our ships, until now we could put to sea at short notice with a dozen ships of the line, the largest, noblest, and most efficient that ever went into battle. This is not merely an American conceit, but the acknowledgment of the whole world. We have preserved the exterior proportions of the most beautiful class of vessels in our ships of the line, which, while they present the level side, uniform outline, and perfect symmetry of frigates, for which they are often mistaken at sea, yet threaten an enemy with batteries of one hundred guns of a calibre hitherto unknown upon the ocean. We see no room for improvement in this important class of our ships, should there not soon occur another era in naval war, by the introduction of a new agent more destructive than any now in use. We have not been so successful in the frigates and sloops which we have constructed since the war, as in our ships of the line. New models have been introduced with a view to improvement, and the result is, that while the best of the new frigates and corvettes are in no particular superior to the old ones, many of them are decidedly inferior in speed and beauty. We speak of beauty as an advantage, and we consider it so without doubt; for, independently of the fact that good looks and good qualities are almost invariably found together in ships, that at-

tachment of officers to the vessel they sail in, which is so desirable, depends in no slight degree upon her beauty.

The era to which we allude, as capable of changing the system of naval war, and setting aside our ships of the line, is the introduction of bomb-cannon, or the practice of projecting bombs horizontally. It has been discovered that shells, or hollow shot charged with combustible matter, may with perfect ease be projected in a right line from ordinary cannon, and that consequently they may not only be successfully used from the land against ships, which the difficulty of striking when projected in a curve before prevented, but also in the ordinary naval battle between ship and ship. The frail character of these floating castles, too, renders them peculiarly assailable by this means of destruction. Experiments have been tried in various countries, and especially in France, to prove the practicability of this new mode, and the results, so far as we are acquainted with them, threaten the overthrow of the present method of naval warfare. Hollow shot, charged with combustibles, were fired from ordinary cannon into masses of timber bound more securely together than the most solid ship, and they were rent to pieces. Hulks prepared for the purpose were attacked in the same manner; when the shell failed to explode, it produced the same injury as an ordinary shot; if it entered a mast and there exploded, it shattered and overturned it with its whole system of yards and rigging; if it came through the side and lodged upon deck, its explosion scattered smoke, fire, and destruction on every side; if it lodged in the side and there exploded, the rent opened, if near the water, was such as to cause inevitable sinking. These facts, thus determined, have led naturally enough to various speculations as to the means of meeting the danger. There are two sides to a question of fighting, as to every other question; and when efficacious means of destruction have been invented, it next becomes necessary to devise preventive means to obviate them. In this spirit we remember to have seen, several years ago, an article in a *French Review*, in which the practicability was gravely discussed of defending ships from shells and shot of every kind, by means of bands of iron nailed upon the whole exterior surface. Should this idea be realized, ships of war would become so many cuirassiers afloat. We would suggest to the attention of the speculative, that since shot are harmless when they strike even a wooden surface at

a certain angle, ships of war, instead of being wall-sided, might be made to *tumble out*, and continue increasing in beam from the surface of the water upwards, so as to give to their sides the angle that would deflect a cannon-ball. This would be the more feasible, if, as has been suggested by the speculators on the subject, the introduction of bomb-cannon should cause the abandonment of large ships, and the substitution of smaller ones; for, whilst a ship of the line offers many times the surface for attack that a sloop or a schooner does, her increased means of annoyance are not proportionate; ten bombs lodged in the side of a ship being as efficacious for her destruction as a hundred, a ship carrying ten guns becomes as formidable as one mounting ten times ten.

What we give here is only the result of experiments upon the other side of the ocean. We should like much to know if anything has been done upon this side. If the same experiments have produced the same results here, and proved conclusive as to an approaching change in naval war, would it not be the part of wisdom, instead of multiplying expensive constructions connected with an exploded or obsolescent system, to be beforehand, not only in introducing the new engine, but in preparing to meet and resist it? The advantage will attach to the first nation that adopts it, in the event of war; but cannot long remain peculiar. If the plea of humanity be in the way of its adoption, we answer, with the history of all ages to support us, that naval war has become less fatal to life as the means of destruction have become more effective and formidable. The slain at Salamis were more than those of Lepanto, and this last battle counted alone many times the added victims of the Nile, of Trafalgar, and Navarino. Besides, what has humanity to do with warfare? Is it from humanity that we mount guns of the heaviest possible calibre, from which we are prepared to shower round shot, grape, and canister,—that we wield muskets, pistols, pikes, cutlasses, and tomahawks? Why did we so strive, during the last war, to excel in rapidity of fire? And what, in fact, is any and every naval battle but a trial of powers of destruction? With us, indeed, the cause of resistance is the cause of humanity. Whatever may be the character of other governments, the genius of ours forbids any but a defensive war; and self-defence, among nations as among individuals, is equally legitimate and praiseworthy.

But to return to our ships ; admitting their organization to be perfect, that of the officers and crews who sail them admits of great melioration. To begin aft, as in duty bound, the first and most glaring defect that our system offers, is the want of the higher ranks found necessary in other countries in every warlike force, whether naval or military. It does not require any familiarity with discipline either ashore or afloat, to conceive how different may be the tardy and reluctant compliance conceded by one captain to another, temporarily placed over him, but hereafter to become his equal, from his unhesitating and earnest obedience yielded to a General or Admiral. In every military corps, indeed, we find a respect, an awe, an unqualified submission, shown to rank, which is not always accorded to age, talents, and experience. This element of subordination is carefully cherished in the constitution of our army, where there are ranks suited to every degree of responsibility, and where, moreover, although the Secretary of War be usually himself a military man of more or less experience, his deliberations are shared by a Major General, who, after ascending the various gradations of his profession, at length finds himself at its head ; from that eminence he can look down and survey the whole, with an eye familiar with the wants, capacities, and feelings of his charge. If this variety of ranks, and this supervision of a commander-in-chief be found necessary to the well-being of a land force, we do not see how the like can be dispensed with in a naval force, whose system can scarce be appreciated by a landsman, necessarily ignorant of the *matériel* and *personnel* of his charge, and of all its complicated relations. We consider this question simply in its connexion with the efficiency of the navy, and with the public welfare of which this is the barrier. We lay no stress on the embarrassment and humiliation our commanders sustain on foreign stations, where they often come in contact with men of superior rank in command of inferior forces ; nor of the crying injustice of allowing the faithful officer, after attaining the modest rank of captain in the prime of life, there to come to anchor and grow gray, until those who commenced their career under him as school-boy midshipmen, shall have reached the same station and become his equals. Yet we do find some difficulty in accounting for this defect of our naval system, when we remember that the proper policy is not only understood, but adopted even in the organization of our militia,

where our worthy legislators, making the case their own, evince no reluctance to receive much higher rank, and wear habitually and with complacency far more sonorous titles, than those which they so jealously withhold from the navy.

In descending to the subordinate officers, we think that we can still discover a want of proper gradations. To prove this we will simply instance the fact, that the first lieutenant of a large ship, who has been fifteen or twenty years in service, is nowise superior in rank, emoluments, and consideration to the youngest lieutenant of a schooner, whose term of service may be but half as long. It can scarce be necessary to prove, that the situation of the first requires greater qualifications, and involves higher responsibilities, or that his age and wants merit a higher rank and increased salary. We are aware, indeed, that the naval officer, devoting himself,—mind, character, health, and life, to serve his country, must abandon all hope of hereafter forming those tender ties to which nature prompts, and which are the only preservative for virtue; or, if betrayed into the imprudence of matrimony, be content to descend to a humiliating parsimony, which is yet no protection from poverty and discomfort. But we do contend, that, if a young man enters the navy, high in hope, without any view to sordid considerations, and with the future alternative not fairly before him, it is neither worthy nor becoming a great nation, when it finds its noblest youths thus entrapped into its service, and unfitted for other employment, to profit by the advantage, and withhold from them even a younger brother's portion of that competence which their talents and industry would have secured to them in any other walk of life. Deficiency of salary, though common to most of the ranks in the navy, bears harder, however, upon the superior officers, especially the masters commandant, than upon the older lieutenants. We think, however, it is sufficiently obvious among these last to require two gradations of lieutenants; those of the inferior one being called sub-lieutenants or ensigns. These could do the duties of lieutenant in the smaller vessels, and of sailing-masters in all. The rank of masters should be allowed to extinguish itself. Few of our commanders receive willingly on board their ships any other masters than *passed* midshipmen, temporarily appointed to the station; well aware, as they are, that men taken from the command of merchant ships are, through age, habits, and education, ill calculated to harmonize with the

regular officers. One important advantage of having the duties of master filled by officers in the line of promotion, is, that they are very improving, and calculated to cherish science among those who perform them. The establishment of the intermediate gradation of ensigns, too, by multiplying promotions, would diminish the present tedious probations of midshipmen, and tend to keep hope and ambition alive in the pursuit of a toilsome career. We can, however, give no reason so potent for the creation of this rank, as the fact that it already exists in the present practice of giving increased pay and additional buttons to *passed* midshipmen, whereby they are invested with a sort of mongrel promotion. Much as we think this intermediate rank required, we do not see that positive necessity for it which exists for the creation of the higher ranks.

Of the various classes of officers into which our navy divides itself, there is none, however, that so urgently recommends itself to the solicitude of the country as that of midshipmen. It may be further said, that none can, by future results, so well reward the solicitude that may be bestowed upon it. The habits and characters of the older officers are already formed, and will admit only of slight modification ; but midshipmen may be modified at pleasure. According to the existing system, their only education beyond the mere reading and writing they have learned of the school-madam, is picked up on board, so that if they acquire anything in addition to the mere practice of the profession, it is owing, in the first place, to their own zeal and desire of improvement, and, as they grow older and draw nigh the term of their probation, to the terrors of an approaching examination. Some may say that the practice of the profession is enough, and instance sundry hard fighters, who have known no more, to prove it. But our most meritorious officers, of every rank, are not of this opinion ; and accordingly we find them acquainting themselves with the laws of nations, mastering the languages of those countries which they most frequently visit, and cultivating a taste for the sciences, and the study of that nature which presents herself to them in so many various and imposing forms. But all these acquisitions are made in the face of every disadvantage. Study is prosecuted without system ; the best works are either unknown or are procured with difficulty ; and the habit of application and fixed attention, the most valuable of

all habits, the very root of all excellence, cannot well be formed except in youth, when mind and character are alike flexible. This youth is now spent on ship-board, and its best days, the days of aptness and docility, usually consecrated to education, are idly wasted, or, at best, employed in acquiring that practical knowledge, which would be of infinitely easier attainment were a foundation laid, and the mind matured by years and study. Often those generous impulses, which, if directed aright, might lead to the most brilliant results, left to themselves, or at best unwholesomely restrained, run riot until mind and character are perverted, and the hopes of affection and patriotism drowned in debauchery. We see but one measure adapted to remove the evil and attain the good, a measure, which, though longed for by the navy, desired by the nation to which it is so justly dear, and again and again urged upon Congress by executive recommendation, yet from the intricacies of parliamentary proceedings, the clashing of party interests, or some other sufficient cause, is still unhappily a *desideratum*.

We speak of a preparatory school for the navy, such as the army possesses in the Academy at West Point. The motives for establishing the one are not inferior to those which long since called the other into existence. Naval affairs are not less distinct from the ordinary pursuits of life than military affairs, and therefore we cannot discover why those, who are to make them a profession, should less need a specially adapted education. And if it be admitted that a preparatory education is as necessary to qualify a youth to become a distinguished naval officer, as to excel as a soldier, it will not be denied that high qualifications in the former are not less essential to the safety, honor, and reputation of our country. In time of war the navy is to fight our battles, to meet the danger at a distance upon the deep, and preserve our shores from the foot of the invader; surely the navy should not merely be brave, but skilled in all the arts and resources that decide the fate of battles; versed not only in whatever theory may suggest, but acquainted with all the expedients that have ever been resorted to in extremity of peril by the naval heroes of ancient and modern times. In seasons of peace, our friendly relations with the greatest powers of the earth are in no slight degree entrusted to the keeping of our naval commanders; for it is only on the common highway that we come in contact with

each other, and it is there that our interests and honor are most often brought into collision. No one, then, can deny that the happiness of our country is as much entrusted to the safeguard of the navy as to the officers of the army, whose most important functions go no farther than to keep the peace with the wandering tribes, whom we continue driving before us into the wilderness. At all times our ships of war are the representatives of our country in every quarter of the globe ; it is chiefly by the worth, by the intelligence, and by the courtesy of their officers, that an estimate can in those distant regions be formed of the nation that sends them forth. Surely, then, our national honor, and the consideration in which we are held by other countries, that consideration concerning which we are so sensitive, and which, however condemned by some, proves a strong motive to excellence, are not less entrusted to the keeping of our naval officers, who visit every region, than to our soldiers, who are only seen by those who, coming among us, have the whole nation before them. It is not our object to draw invidious comparisons, with a view to undervalue the Military Academy ; we desire not to depreciate the army, but to vindicate the navy. Instead of restricting the efforts of that noble institution, we would willingly see the most practical and perfect education in America extended to a double number of our youths, who should convey the seeds of science to every corner of the republic.

Our ideas of a Naval Academy are, that it should be established in some healthy, isolated situation, with the sea in sight, and constant opportunities of witnessing the manœuvres of arriving and departing ships. The age of admission might be twelve years, and the term of service four years, making the youths sixteen at the time of graduation ; at this age, with their previous training, they would be able to serve some better purpose on ship-board than that of play-things for the older officers. The system of discipline should be rigid, yet paternal, under the superintendence of a most carefully selected officer. Mathematics would of course form the groundwork of their education ; but we would not urge its pursuit beyond the point necessary to render intelligible the various problems of nautical astronomy ; upon this would afterwards be raised the superstructure of physics, astronomy, navigation, surveying, naval architecture, and the theory of working ships. In connexion with these more solid studies, a knowledge of his-

tory, of the laws of nations, and of the rules of composition, should be acquired. The French and Spanish languages should be thoroughly taught by natives, and the more advanced classes should be able to understand lectures in both languages. An infusion of young men of French and Spanish parentage, from Louisiana and the Floridas, would greatly facilitate this most necessary acquisition. Drawing would be a highly useful accomplishment to naval officers. As for general literature, we would leave them to acquaint themselves with it hereafter, during the abundant leisure of their future profession, doing no more to cherish a taste for it than to provide a well-selected library, in which travels, naval chronicles, and whatever relates to the sea should not be forgotten, and from which all idle books of a sickly and demoralizing character, such as form the chief mental nutriment of modern readers, should be most carefully excluded.

Nor would we be satisfied, as in most seminaries, with merely training the mind; we would bestow equal care upon the unfolding of the bodily powers, and strive to send each aspirer forth a perfect Lacedemonian. No young man should wear a sword until he could wield it to some purpose in defence of life or honor. The chief of our exercises, however, would be found in the manœuvres of a small ship; not moored in the mountains, as at Angoulême, nor planted upon dry land, or rather on the tops of trees, as at Amsterdam; but a real, moving, live little ship, that could lift her anchor and sail away at will. In such a ship, reefing, furling, steering, and all the manipulation should be performed by the lads themselves. Each class should have its proper station; the junior class should do the hauling and deck-work; the next would know enough to become topmen; those who should have served a year longer would fill the stations of fore-castle-men, petty officers, and helmsmen; the senior class, having learned a lesson of obedience and subordination in each succeeding gradation, would now in turn exact equal deference in the character of officers, and be stationed in various parts of the ship, each directing the efforts of his more youthful and less experienced gang; while one of this number would in rotation be invested with the command of the whole, under the ever-watchful eye of the superintendent. An allotted portion of every fine day might be employed in stripping or rigging ship, or in reefing and furling; one day in

each week should be exclusively appropriated to a cruise round the harbor.

During at least one entire month of every year, we would set the whole school free from study, and keep the lads constantly embarked, organized, and stationed for evolutions and for battle, like the crew of a regular cruiser. In this interval we would not merely have them reconnoitre the coast, and become pilots, but brave the ocean, visit various ports, and penetrate our noble rivers. We would not deny them the cordial attentions, which their proud and admiring countrymen would hasten to tender to them, wherever they appeared; and we can conceive no vacation so delightfully spent as would be this of our young aspirants after naval glory. Seamanship, taught in the way that we thus suggest, would be taught most thoroughly; nothing would be left to accident, or individual ambition and desire of excellence, but every youth would be forced to become a seaman and an officer. We can see no reason for withholding the institution, which justice, not less to the navy than to the nation, claims from our legislators, but the plea of economy. To remove this, we would suggest that the lads should be clothed and rationed upon a regular system, at the public expense; parents would be happy enough to procure their children such an education on any terms, and as for the boys, they are quite as well without money. We might find another source of economy in abolishing the expensive examinations, which now furnish a poor substitute for preparatory education.

It has been suggested that, in the event of our having a naval academy, an observatory, for which we already possess the necessary instruments, should be connected with it, and the professors be constituted a board of longitude. The suggestion is an admirable one, and we would improve it by the additional idea, that the institution should contain a hydrographical *dépôt*, for the collection and collation of charts, and for procuring, by correspondence with navigators, naval and mercantile, whatever information might conduce to perfect a knowledge of the coasts and waters of the navigable world. Science gains by concentration, and the neighborhood of such pursuits would greatly tend to raise the standard of scientific excellence among the students of the academy. The nation which holds the second rank for extent of commerce and navigation, should not depend entirely for the most necessary calculations upon one that

is already her rival, and may again become her enemy ; nor be the only one to do nothing to improve nautical science, and diminish the dangers of the deep. Pride and policy alike forbid it.

When our navy shall be supplied with officers from an institution such as has been suggested, we may confidently look for some new accessions to the honorable reputation which it has already obtained for itself. One of the greatest benefits it would confer, would be found in the probation of mind and character which would take place at the academy, whereby those who are disqualified would be purged from the profession, and, instead of going on disgracing themselves as midshipmen, lieutenants, and superior officers, be arrested at the very threshold. The seeds of good being thus sown, and our young men thus prepared to run an honorable career, much might still be done after they entered upon the active exercise of the profession, by the care and solicitude of the commanders. We think there might be more sympathy between the commander and his officers. Especially do we think there should be, as we know there often is, something paternal in the government over the midshipmen. We think that every opportunity of improvement should be thrown in their way, by not only allowing them to visit the ports where their ship may be anchored, but encouraging them to make excursions into the interior, and bring away more definite ideas of national manners and customs than can be gathered in a visit of a few hours to the shore, the chief of which time is usually spent in the billiard-room. It is in the power of every commander to introduce his officers, everywhere, to the best society, and we can conceive no way so effectual of diverting them from destructive dissipation. The author of the *'Naval Sketches'* speaks very sensibly on this subject, in describing the occupations of our officers during their yearly wintering at Minorca.

Before we take leave of that part of our naval system which applies to the officers, we will avail ourselves of the occasion to express a few opinions upon the subject of their uniform. In all military corps, one of the most efficacious means for the support of discipline and concerted action, is a uniformity of dress. Harmonious appearance and the mere gratification of the eye are not its only advantages. It furnishes the means of distinguishing a peculiar class of men from all others, and, by preventing them from withdrawing themselves from the observation of their superiors, greatly increases their sense of amena-

bleness. It abets the authority of those who order, and rivets the subservience of those who obey. The great essentials of a uniform dress we take to be perfect and decided uniformity, in connexion with plainness, cheapness, neatness, and durability. These essentials are in no particular attained by the present system. Our officers have now a dress so expensive and gaudy, and in such bad taste, that they are ashamed to wear it; and an undress, that is no dress at all. Both being lawful to be worn, some choose the one, and some the other, according to individual fancy; whilst others compromise matters by adopting a mean between both. Thus, a laced hat may sometimes be seen in connexion with a rolling-collared coat, nowise different from those worn by our citizens, except in a profusion of buttons. In fact, the undress naval uniform is a uniform exclusively of buttons; and nothing is more common than to see a coat, which has already done its owner good service in his peaceful character of citizen, during the interval of his cruises, by the aid of a few pounds of brass, transformed suddenly, upon the arrival of an order from Washington, into as pugnacious a campaigner as ever paraded a quarter-deck. The fashion of such an old servant, its velvet collar, or fan-tail skirt, can no more than its faithful service save it from conscription.

We think that there should be one only uniform; which, whilst it should be characteristic and decided, should be at once neat, plain, cheap, and durable, entirely free from all lace and tinsel, to glitter for a week, and then look dim and tarnished during the rest of the cruise. With this view, we suggest the substitution of a single-breasted coat of green or blue, to be worn buttoned in front, and free from cuffs, pocket-flaps, and other excrescences; a pantaloon of the same for winter, and of white for summer. The coat might be lined with buff or scarlet, and a rib of the same be carried down the outside seam of the pantaloon.* To these should be added half-boots, a plain cocked-hat, and a stout sword, for use as well as show, made

* The two colors being equal in other respects, we should prefer the green, because it is not worn by the navy of any other nation, and would, therefore, be more characteristic. We may perhaps owe our readers an apology for thus marring the dignity of the critic page with a dissertation upon buttons and broadcloth; but stateliness, grandiloquism, and generalization would be alike thrown away upon such a subject, and we had only to choose between not speaking at all, and speaking specifically.

on a uniform pattern at the government armories ; it should be worn securely upon the hip, suspended from a concealed shoulder-strap. As for the trifling swords of every possible pattern, which now dangle at the heels of our officers, they are, in connexion with the general ignorance of their use, rather a danger than a protection. The only variation we would allow from this single uniform, should be that of round-jackets, of similar cloth and fashion to the coat, and cloth foraging-caps.

A large double-breasted fatigue surtout, of the same color, should relieve the whole family of plaid cloaks, upper benjamins, pea-jackets, and monkeys. This or some similar general system of uniform once established by order, we would compel all the officers, on all occasions, to dress in uniform or fatigues, in conformity to the temporary regulation of the commander. This authority is already exercised to produce uniformity in the appearance of the seamen, though no regulation of the service specifies their uniform ; much more, then, may it be applied to the dress of the officers, whose dress is regulated, and with whom subordination should ever begin. We would have a uniform system running through the dress of the various ranks of officers, and reaching, to a certain extent, to the sailors, whose dress should also be regulated ; the superior officers should be distinguished from their inferiors, less by superior glitter, than by the quality of their epaulettes, or some minute ornament, obvious rather to their own corps than to a stranger or an enemy. Nelson lost his life at Trafalgar by the conspicuousness of his uniform. We think this subject worthy of attention, not merely because it has much to do with the appearance and display of our navy ; but because it might always affect its efficiency ; and because a neat uniform would, among the younger officers, do much to cherish in them a love and pride of profession.

Let us now consider what room there may be for improvement in the organization of the most numerous class of our navy, the class of inferiors. In the first place, then, we consider the abolition of the marine-corps absolutely necessary to the efficiency and harmony of our ships. The marine-corps was adopted in our navy with the rest of the system which we copied from Britain, although the reason of its institution did not apply to us ; it having been originally instituted in order that the officers might avail themselves of the aversion existing between the seamen and soldiers, to make themselves a bul-

wark of bayonets in the event of mutiny, so likely to result from the vexatious irksomeness of a compelled and hopeless servitude. The voluntary enrolment and regular discharge of our seamen entirely remove this danger from among us; so that we do not derive from the marine-corps the advantages which led to its institution, whilst we are fully exposed to all its inconveniences. These are manifold. In the first place, soldiers, when embarked, whilst they are more in the way than an equal number of seamen, are either of no use for the ordinary duties of the ship, or else, in becoming useful, they lose entirely their distinctive character, and cease to be more of soldiers than the seamen among whom they become mingled. Between the marine and sea officers, too, there is a perpetual discord, arising from their unnatural association. The marines carry on a continual contest of conflicting privileges, as to the command of their guard, and sometimes even endeavor to set themselves free from that law of universal subjection to the commander, which is the sole bond that keeps a naval community together. We would say, then, to avoid the great injustice of disbanding the marine-corps, and depriving its members of their profession and support, either make it an exclusive appendage of our naval stations, or else incorporate it with the army.

The marine-corps abolished, or, at least, its unnatural connexion with our ships severed, it would be easy to introduce a more perfect and harmonious organization among the crew. Nothing would be easier, if necessary, than to have all the men trained to the use of the musket, and qualified to act on shore in defence of the coast, without the danger of dispersing. But the great object of rendering them effective at sea would be perfectly attained by enlisting them for a particular ship, with the right of transfer, and in all cases for the duration of the cruise. This arrangement would save our commanders the infinite embarrassment which often results from the expiration of the term for which their crews have entered. No men are greater sticklers for the letter of the law than seamen; and when thus illegally detained beyond their time, they often become discontented, and the commander must either yield a portion of his authority, or resort to a harshness of discipline, which the circumstances render as unpleasant as it is unjust. To obviate the dread of an unlimited term of service, which might deter seamen from entering for the cruise, care should

be taken that no cruise exceed three years; a term already sufficiently prolonged. In entering a crew, we would not allow them to enter for any particular rank or wages; but would classify them according to their merits when embarked, awarding the stations of petty-officers to those who should possess recommendations for having faithfully filled those stations in other ships, and retaining the power to promote, through all the various gradations of boys, ordinary seamen, seamen, and petty-officers, according to individual merit and good behavior. We do not think that the boatswain, gunner, carpenter, and sail-maker, should be warrant officers, but entered like the rest of the crew, and equally subject to promotion and degradation. These offices are best filled by individuals temporarily appointed, and liable to removal at the pleasure of the commander; while those who have warrants, having no hope of going higher, and no immediate fear of descending lower, lose all ambition. Moreover, they would furnish to the whole crew, when within their reach, a powerful motive to emulation and excellence. Finally, we would not receive a single individual into our ships who was not a native-born American. But under the present system of discipline, and whilst there is danger of being for ever degraded by the stroke of the lash, American seamen, or, at all events, the better class of them, will not enter the service of their country. That system which deters Americans from serving their country, and forces us to receive a large proportion of foreigners as the only alternative, must be false, cannot be permanent, and, therefore, demands of legislative wisdom (we do not appeal to humanity) an immediate reformation.

Our naval system, as we have already seen, was received from Britain. Her sailors, forced into her navy like slaves, and forming at least one excepted class from the boasted spirit of universal emancipation, could of course only be controlled by the same bodily compulsion by which they were kidnapped and deprived of their liberty. Though voluntary enrolment was at once substituted among us for compulsion, the lash, which was its counterpart, was most inconsistently retained. Hence the more worthy of our seamen were excluded from the public service, except when out of employment in time of war or embargo; and of course it was compelled to supply itself from among the less scrupulous; out of whom and the foreigners, who entered extensively, a class was formed and per-

petuated of degraded individuals, who have rendered the name of man-of-war's men a stigma, and who, accustomed to obey no law but that of brute compulsion, are still kept in order only by the means of their degradation.

The navy, in point of ease of labor, quality of food, and the chance which long voyages offer for accumulation (to which sailors, however quickly they may spend their money, are not indifferent, as may be seen by their making long voyages in the merchant service, at reduced wages); the pleasures to be derived in it from a numerous society and stated leisure; its festivities, music, dancing, *esprit de corps*, pride of ship, and all its multiplied means of enjoyment, holds out strong inducements to seamen; all, however, counteracted among the less corrupt by the terrors of the lash. Take away these terrors, and our best seamen will enter in abundance. Associate with them a large number of youths, alike unimpaired in character and constitution; and these, cherished by their officers, and ambitious to excel, will soon become skillful seamen. Seaman-ship is incomparably more perfect in the navy, and it will, therefore, be easy to send these young men forth more perfect, than if they had been reared in the merchant service. Hence, then, instead of being indebted to the merchant service for seamen, whom we send back corrupted, and only susceptible of being kept in order by naval discipline, to mutiny, and cause the miscarriage of voyages, we should furnish it with seamen equally distinguished for skill and habits of subordination.

We agree with the author of the 'Naval Sketches,' in condemning the daily issue of ardent spirits as part of the naval ration. A whole crew, without reference to previous habits or individual constitution, learns to swallow the poisonous dose. We can indeed conceive no idea more shocking, than that grave legislators should have thus set their names to a law, whose sole effect is the promotion of intemperance. There is no truth in the idea that grog is a bounty for enlistment; it is only a bounty to those whom it would be desirable to exclude from the service. In merchant ships, where our best seamen are found, the issue of grog is unusual. Grog, in a man-of-war, is a sufficient source of all discord and of every crime; while grog continues to be drunk there, the sound of the lash and a shriek of the tortured and degraded victims will continue to reverberate through our ships. We agree farther with him in believing that much advantage might be derived from the cul-

tivation of the moral character of seamen; and one can, indeed, see no sufficient reason why a ship of war, instead of being a school of ignorance and vice, might not offer a spectacle of intelligence, good order, and morality. We are aware, that in every system of government there will be crimes, and, consequently, that there must be punishments; but what prevents those punishments which are found efficacious ashore, from being equally efficacious afloat? and why might not the hope of reward furnish as strong an excitement to good conduct as the fear of punishment? Be it as it may, substitute whatever punishments you please, even death itself, but let corporal punishments cease henceforth and for ever from among us. With our seamen, as with our children, let us leave them to that nation in which everything is complicated, factitious, unnatural; let it not be said that, while Frenchmen, bowing to the nod of their Emperor, were able to conquer the world by the aid of moral incitements, Americans cannot defend their country but by the impulse of the lash!

ART. VI.—*Elements of Geometry, with Practical Applications for the Use of Schools.* By T. WALKER. Second Edition. Boston. Richardson, Lord, & Holbrook. 1830. 12mo. pp. 104.

THE progress of Geometry, from its rude beginnings in Egypt, to its present state of advancement, exhibits one of the most perfect and beautiful developements of human intellect. Starting from a few simple truths, the application of which the necessities of common life first taught that primitive people, it passed, step by step, along its forward path through the Grecian and Alexandrian schools, and from them through the middle ages to modern times, until it has at last entered a region of unerring truth, no less wonderful to the uninitiated eye, than would be the fabled glories of oriental Fairyland. As the science advanced from truth to truth, each more surprising than the last, it is no wonder that the imaginations of its devotees were enkindled to the most dazzling anticipations of the grandeur of future discoveries. The delight, which the mind